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# MISCELLANEOUS.

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150. Proposed by T. N. HAUN, Mohawk, Tenn.

If  $\frac{\sin \phi}{\sin \psi} = m$ , find maximum and minimum value of  $\frac{\sin(\phi + \theta)}{\sin(\psi + \theta)}$ , where  $\theta$  is known.

151. Proposed by W. J. GREENSTREET.

Sum the series  $\sum_{r=1}^{r=m} \operatorname{cosec}\left(\frac{2r-1}{4m}\pi + \theta\right) \operatorname{cosec}\left(\frac{2r-1}{4m}\pi - \theta\right)$ .

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# NOTES.

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Mr. A. R. Crathorne of the University of Wisconsin is a student at Göttingen.

Professor W. D. Cairns of Oberlin College is spending the year in research at Göttingen.

Professor H. S. White of Northwestern University has been called to Vassar College.

Mr. W. C. Brenke has been appointed Austin Teaching Fellow in Astronomy at Harvard.

Mr. T. C. Jones has been appointed fellow in mathematics at the University of Pennsylvania.

Mr. H. W. Reddick has been appointed fellow in mathematics at the University of Illinois.

Dr. W. D. Westfall has been appointed instructor in mathematics at the University of Missouri.

Mr. Homer R. Higley has been appointed instructor in mathematics in the Pennsylvania State College.

Dr. W. B. Ford of Williams College has been appointed instructor in mathematics at the University of Michigan.

The assistants in mathematics for 1905-6 at Indiana University are Mr. Charles Haseman, and Mr. D. J. Crittenberger.

The University of Washington has appointed Professor F. M. Morrison of Buchtel College as assistant professor of mathematics.

Professor H. F. Blichfeldt will spend next year in research at European universities, on leave of absence from Stanford University.

Professor G. A. Bliss, of the University of Missouri, has been appointed assistant professor of mathematics at Princeton University.

At the University of Indiana Dr. S. C. Davisson, and Dr. David A. Rothrock have been promoted to junior professorships in mathematics.

Dr. L. I. Neikirk, formerly Harrison Research Fellow at the University of Pennsylvania, has been appointed instructor in mathematics at the University of Illinois.

Mr. Louis Fussell, Lippincott Fellow in Mathematical Physics at Swarthmore College, is spending the year in graduate study at the University of Wisconsin.

Professor B. F. Finkel has been appointed Harrison Fellow in mathematics at the University of Pennsylvania, and is spending the year in graduate study in Philadelphia.

The Springfield Section of the Missouri Society of Teachers of Mathematics has effected organization for the year with a membership of twenty-five. The executive committee in charge of the work consists of Dr. O. E. Glenn, Miss Elizabeth Park, and Miss Nena Baxter.

The July number of the *Bulletin of the American Mathematical Society* contains Professor Henry Dallas Thompson's translation of M. Gaston Darboux's address, "A Survey of the Development of Geometric Methods." The address was delivered at St. Louis, September 24, 1904, before the geometry section of the International Congress of Arts and Science.

The Bolyai prize, established by the Hungarian Academy of Sciences in memory of John Bolyai and his father Farkas Bolyai, will be awarded this year for the first time. The awarding commission will deliberate in Budapest in October. It consists of the following members: Gaston Darboux (Paris), Felix Klein (Göttingen), Julius König (Budapest), Gustav Rados (Budapest).

The prize consists of a medal and ten thousand crowns, and will be awarded to the author of the best work in mathematics published during the five years preceding.

The current number of *Proceedings of the London Mathematical Society* contains the following papers: On the Reducibility of Covariants of Binary Quantities of Infinite Order, by Mr. P. W. Wood; Alternative Expressions for Perpetuant Type Forms, by Mr. P. W. Wood; Theorems on the Logarithmic Potential, by Prof. T. J. I'A. Bromwich; Ordinary Inner Limiting Sets in the Plane or Higher Space, by Dr. W. H. Young; A Method for Determining the Behaviour of Certain Classes of Power Series Near a Singular Point of the Circle of Convergence, by Mr. G. H. Hardy; The Intersection of Two Conic Sections, by Mr. J. A. H. Johnston.

In *Science* of August 18 Professor G. A. Miller states that at the celebration of the last birthday of the Emperor of Germany Professor Harzer delivered a long address on the 'Exact Sciences in Old Japan.' Although Professor Harzer is an astronomer, he devoted nearly his entire address to the history of mathematics, saying that the 2,000 mathematical works in the royal library of Tokio, some of which date back to 1595, are a sufficient guarantee of high esteem for mathematical knowledge. As the Japanese mind is very practical, it is to be expected that their mathematical achievements are in very close touch with practical problems and are foreign to those fields of mathematics which border on philosophy. The determination of the area of the circle in terms of its diameter is one of the most important of these practical problems and the Japanese have taken especial interest in developments which are useful to obtain an approximate solution of this problem.

The most surprising fact about Japanese mathematics is that, formerly, while the most elementary parts were regarded as common property, the more advanced results were regarded as secrets which should be communicated to a very few. In fact, an oath of secrecy was required of those who wished to hear lectures on advanced mathematics. European history furnishes a parallel to this in the Pythagorean school, but it is so totally different from the modern spirit that its existence 2,000 years after Pythagoras was unexpected. Fortunately all this has been recently changed to such an extent that a history of Japanese mathematics could be published a few years ago. This is by Tsuruichi Hayashi and a chapter of it entitled "A Brief History of Mathematics in Japan," has been translated into English and published in *Nieuw Archief Voor Wiskunde*, 1904, pp. 296-324, and 1905, pp. 325-361.

We learn from *Science* that the conference held at Asbury Park on July 5, 1905, for the purpose of discussing the advisability of organizing a national society of teachers of mathematics, was attended by a large delegation. After some discussion a resolution was adopted to the effect that a national society of teachers of mathematics and science be organized, and the details of the organization were referred to the following executive committee: Professor Thomas S. Fiske (chairman), New York; Professor C. E. Comstock, Peoria, Ill.; Professor E. R. Hedrick, Columbia, Mo.; Mr. Franklin T. Jones, Cleveland, O.; Professor William H. Metzler, Syracuse, N. Y.; Mr. Edgar H. Nichols, Cambridge, Mass.

A report of the proceedings of this committee will be published in *School Science and Mathematics*.

Following is a list of the associations represented at the Asbury convention, with names of delegates representing each association.

*New England Mathematics Teachers Association*.—Chas. E. Bonton, Harvard University; Paul Capron; Mr. Nichols, Brown and Nichols School, Cambridge.

*Association of Teachers of Mathematics in the Middle States and Maryland*.—John C. Bechtel; Fletcher Durell, Lawrenceville, N. J.; A. Newton Ebaugh; Miss Susan C. Lodge; Donald C. MacLaren; Wm. H. Metzler, Syracuse Univer-

sity; J. T. Rorer, Central High School, Philadelphia; Arthur Schultze, High School of Commerce, New York; H. C. Whitaker.

*Central Association of Science and Mathematics Teachers.*—Otis W. Caldwell; Jos. V. Collins; C. E. Comstock; G. W. Greenwood; Charles H. Smith; Charles M. Turton; J. W. Young, Charles W. Wright.

*Missouri Society of Teachers of Mathematics.*—F. T. Appleby; J. S. Bryan, Central High School, St. Louis; H. Clay Harvey; E. R. Hedrick; B. F. Johnston; John R. Kirk; J. W. Whiteye.

*Chicago and Cook County High School Teachers' Association.*—Edward E. Hill; Fred R. Nichols; Charles M. Turton.

*Mathematical Section of Michigan School-Masters' Club.*—Miss Emma C. Ackermann.

*New York State Science Association, Mathematical Department.*—Glenn M. Lee.

*North Eastern Ohio Center, G. A. S. and M. T.*—Lemar T. Beman, Cleveland High School; Charles A. Marple.

*Ohio Association of Teachers of Mathematics and Science.*—Franklin T. Jones; Wm. McLair.

*St. Louis Association of Science and Mathematics Teachers.*—Wm. Schuyler, McKinley High School, St. Louis.

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## B O O K S

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*A College Algebra.* By Henry Burchard Fine, Professor of Mathematics in Princeton University. viii+595 pages, Cloth. Boston, New York, Chicago, and London: Ginn & Co.

Those who have read Professor Fine's *The Number System of Algebra* will expectantly turn, in this volume, to part first, entitled, Numbers. Their anticipations will be fully met. Under the influence of the Cantor-Dedekind school of thought recent years have shown remarkable advancement of the theory of irrationals and of cardinal number. The elements of this theory lie at the basis of algebra and we have here, we believe, for the first time, a teachable treatise based on these fundamental concepts.

The treatment of the usual subject-matter of college algebra is also admirable. Special features of the text are, short chapters on Interpolation, on Variation, and on Probability, and a moderately long treatment of the elements of the theory of equations. The work ends with a rigid proof of the existence theorem of algebra.

The author has given little space to special devices but seeks "to assist the student to really master the general methods of the science," and the logical interrelations which connect its parts. The work is in every sense a classic. G.

*Elements of Descriptive Geometry.* By Chas. E. Ferris, Professor of Mechanical Engineering in the University of Tennessee. Cloth, 8vo, 135 pages. New York, Cincinnati, Chicago: American Book Co.

The author follows the custom of most draftsmen and does all his work in the third